



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@po.state.ct.us

Web Site: www.ct.gov/csc

March 12, 2004

Michele G. Briggs
Manager of Real Estate
Southwestern Bell Mobile Systems
500 Enterprise Drive, 3rd Floor
Rocky Hill, CT 06067

RE: **EM-CING-111-040211** - Southwestern Bell Mobile Systems, LLC notice of intent to modify an existing telecommunications facility located at 170 Mount Tobe Road, Plymouth, Connecticut.

Dear Ms. Briggs:

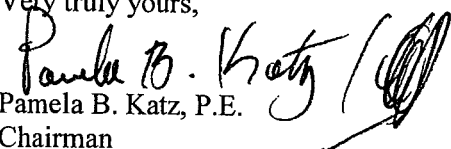
At a public meeting held on March 4, 2004, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated February 11, 2004, and additional information dated February 19, 2004. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,


Pamela B. Katz, P.E.
Chairman

PBK/laf

- c: Honorable Richard G. Covello, Mayor, Town of Plymouth
William Kuehn, Town Planner, Town of Plymouth
Sheila R. Becker, Regional Director of Compliance, SBA, Inc.
Stephen J. Humes, Esq., LeBoeuf, Lamb, Greene & MacRae, LLP
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
Thomas F. Flynn III, Nextel Communications
Sandy M. Carter, Verizon Wireless

EM-CING-111-040211

Perrone, Michael

From: Levine, Steven [Steven.Levine@cingular.com]
Sent: Thursday, February 19, 2004 3:40 PM
To: Martin, David C.; Perrone, Michael
Cc: Schadler, Stephen
Subject: FW: Plymouth, Mount Tobe Rd., Natcomm Project No. 04015

Dave & Mike,

Cingular has determined from its engineering consultant that the tower drawing submitted with the Verizon exempt mod application was the correct version.

I am attaching a revised exhibit for Cingular's exempt mod application and hope this will enable the Council to approve both applications at the March 4 meeting. We apologize for this inconsistency.

Please acknowledge receipt of this email.

Thanks.

SW Bell Mobile Systems / Cingular Wireless

Steve Levine

Real Estate Consultant

500 Enterprise Drive, 3rd Fl., Rocky Hill, CT 06067

Office 860-513-7636

Mobile 203-556-1655

Fax 860-513-7190

-----Original Message-----

From: Schadler, Stephen

Sent: Thursday, February 19, 2004 2:16 PM

To: Levine, Steven

Subject: FW: Plymouth, Mount Tobe Rd., Natcomm Project No. 04015

-----Original Message-----

From: Al Janeiro [mailto:ajaneiro@natcommllc.com]

Sent: Thursday, February 19, 2004 1:59 PM

To: Stephen.Schadler@cingular.com

Cc: brendan ammann; Carlo F Centore; Jennifer Coombs

Subject: Plymouth, Mount Tobe Rd., Natcomm Project No. 04015

RECEIVED
 FEB 20 2004

CONNECTICUT
 SITING COUNCIL

Steve, attached is the revised LE. I apologize for the confusion on the other carriers.

Thank You

2/20/2004

Al Janeiro
Project Manager

Natcomm, LLC
63-2 North Branford Road
Branford, CT 06405

ofc: (203) 488-0580
Fax: (203) 488-8587
Cell: (203) 641-0386
E-mail: alj@natcommllc.com

<<04015 LE 1.pdf>>



EM-CING-111-040211

Michele G. Briggs
Manager of Real Estate

February 11, 2004

Ms. Pam Katz, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

**Re: Notice of Exempt Modification – Existing SBA Telecommunications Tower
Facility at 170 Mount Tobe Road, Plymouth, Connecticut**

Dear Chairman Katz:

Southwestern Bell Mobile Systems, LLC (“SBMS”) intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 170 Mount Tobe Road in Plymouth, Connecticut.

The Plymouth facility is located west of Mount Tobe Road (CT Rte 262), which intersects CT Rte 8 at exit 37. Tower coordinates (NAD 83) are N 41° 37’ 48” and W 73° 03’ 23”. The facility is owned and operated by SBA Properties, Inc. (“SBA”), 5900 Broken Sound Parkway NW, Boca Raton, FL 33487. SBA leases the land from Susan and Walter MacDonald of Plymouth.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to the Mayor of Plymouth.

SBMS, the local component of the nationwide Cingular Wireless network, is licensed by the Federal Communications Commission (“FCC”) to provide cellular mobile telephone service in the Litchfield, CT Rural Statistical Area, which includes the area to be served by SBMS’ proposed installation. The public need for cellular service has been predetermined by the FCC.

SBA has agreed to plans put forth by SBMS pursuant to mutually acceptable terms and conditions and has also authorized SBMS to obtain necessary government approvals. Attached to this Notice are a site location map, a proposed site plan, the proposed tower profile, and a structural analysis report that shows the tower is structurally capable of supporting the proposed SBMS telecommunications equipment.

The SBA facility was approved on September 27, 2001 by local zoning authorities under an application submitted March 31, 2000. (See attached Town of Plymouth zoning documents.) The submission date was prior to the November 20, 2000 Covello decision concerning Council and Town jurisdiction for tower siting. The tower came under Council jurisdiction with T-Mobile's application to co-locate in TS-T-MOBILE-111-030128, which was approved on February 11, 2003. The timing of the site's zoning was noted at the 2/11/03 Council meeting prior to the vote (notes of Steve Levine).

The Mount Tobe Road facility consists of a 160-foot monopole within a roughly 68' x 68' compound surrounded by a 6-ft high chain link fence topped by barbed wire. Sprint, Nextel, and T-Mobile operate antennas and associated equipment at the facility.

Cingular's application to collocate at the Plymouth site will be addressed at the same Council meeting (February 18, 2004) as an application from Verizon Wireless for the same tower. The Cingular application incorporates facility information for Verizon's installation. Additionally, the Cingular structural analysis accounts for Verizon's antennas and associated equipment.

As shown on the attached drawings and as further described below, SBMS proposes to install up to twelve CSS DUO-1417-8686 panel antennas, approximately 48 inches in height, with the center of radiation approximately 108 feet above ground level. Associated equipment to be installed on the tower are up to six dual-band tower top amplifiers ("TTA's"; small metal boxes approximately 26 pounds apiece) immediately behind the antennas, and up to three very small (5 pounds apiece) CSS dual-band "combiners." SBMS also proposes to place a 12' x 20' prefabricated concrete equipment building at the base of the tower. All work will be done inside the existing fenced compound.

With the "GSM-only" configuration, SBMS will broadcast up to:

- 2 channels, 296 Watts ERP, 880 – 894 MHz; and
- 2 channels, 427 Watts ERP, 1930 – 1935 MHz.

Statutory Considerations

The changes to the Plymouth tower facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2) because they will not result in any substantial adverse environmental effect.

1. The height of the overall structure will be unaffected.
2. The proposed changes will not affect the property boundaries. All new construction will take place on property leased by SBA and within the existing fenced compound.

3. The proposed additions will not increase the noise level at the existing facility by six decibels or more.

4. Operation of the additional antennas will not increase the total radio frequency electromagnetic radiation power density, measured at the tower base, to or above the standard adopted by the State of Connecticut and the FCC. The "worst-case" exposure calculation in accordance with FCC OET Bulletin No. 65 (1997) for a point of interest at the base of the tower in relation to the operation of the currently proposed antenna array is as follows:

Company	Centerline Height (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density [†] (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
T-Mobile *	157	1935	8	151	0.0176	1.0000	1.76
Sprint *	147	1962	11	122	0.0223	1.0000	2.23
Verizon *	137	1970	3	200	0.0115	1.0000	1.15
Nextel *	127	851	9	100	0.0201	0.5673	3.54
Cingular	108	880 - 894	2	296	0.0182	0.5867	3.11
Cingular	108	1930 - 1935	2	427	0.0263	1.0000	2.63
Total							14.42%

* Power density parameters taken from applications to the Council: TS-T-MOBILE-111-030128, EM-NEXTEL - 111-030106, and EM-VER-111-040202.

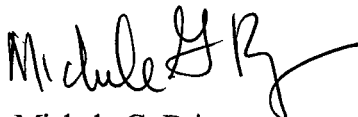
† Please note that the standard power density equation provided by the Council in its memo of January 22, 2001 incorporates a ground reflection factor of 2.56 (i.e., the square of 1.6) as described in FCC OET Bulletin No. 65.

As the table demonstrates, the cumulative "worst-case" exposure would be approximately 14.4 % of the ANSI/IEEE standard, as calculated for mixed frequency sites. Total power density levels resulting from SBMS' use of the tower facility would thus be within applicable standards.

For the foregoing reasons, SBMS respectfully submits that proposed changes to implement expanded shared use at the Plymouth site constitute an exempt modification under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 513-7700 or Steve Levine at (860) 513-7636 with questions concerning this application. Thank you for your consideration in this matter.

Respectfully yours,

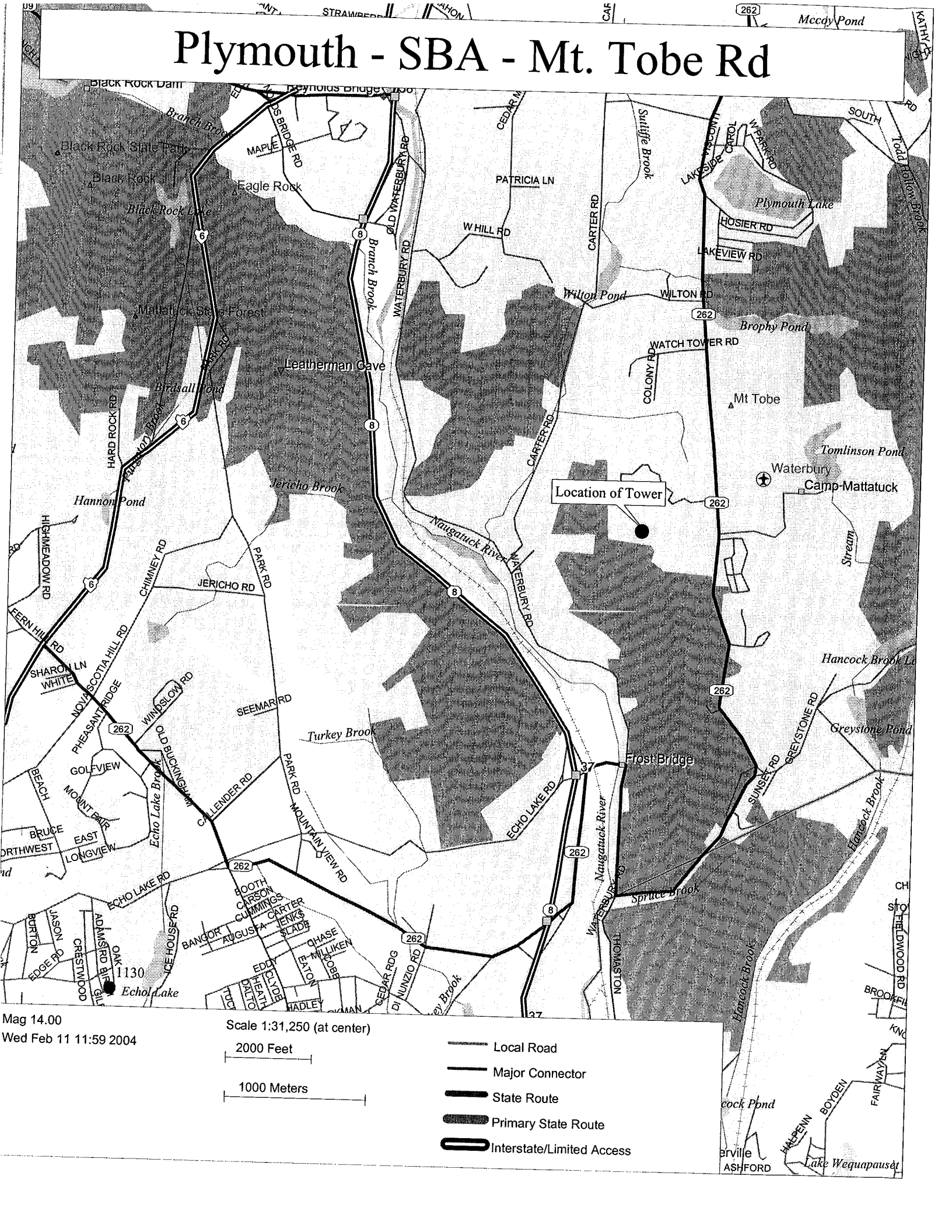


Michele G. Briggs
Manager of Real Estate

Enclosures

cc: Honorable David C. Mischke, Mayor, Town of Plymouth

Plymouth - SBA - Mt. Tobe Rd








Mag 14.00
Wed Feb 11 11:59 2004

Scale 1:31,250 (at center)

2000 Feet

1000 Meters

-  Local Road
-  Major Connector
-  State Route
-  Primary State Route
-  Interstate/Limited Access

MAR 31 2000

LAND USE DEPARTMENT

TOWN OF PLYMOUTH
PLANNING AND ZONING COMMISSION
APPLICATION FOR ZONING PERMIT

EST. VALUE 150,000⁰⁰
FEE PAID 100⁰⁰ *046115

DATE OF APPLICATION 3-27-00
APPLICATION IS HEREBY MADE TO THE PLANNING AND ZONING COMMISSION
OF THE TOWN OF PLYMOUTH FOR A PERMIT FOR:

New construction swimming pool
addition accessory brda. sign
parking lot other renovation

LOCATION OF PROPERTY 170 Mount Tobe Road
MAP # 093 BLOCK# 138 LOT# 002

APPLICANT: SBA, Inc. 49 Leavenworth Street Suite 200 Waterbury, CT 06702

OWNER (IF DIFFERENT): Susan and Walter MacDonald

ADDRESS (IF DIFFERENT): 42 South Rd. Plymouth, CT

PHONE (HOME): _____ (WORK): SBA - 203-578-3697

ZONE RA1 LOT AREA 10,000 Sq. Lease LOT FRONTAGE 1590'

WIDTH OF LOT 1590' AVERAGE DEPTH OF LOT 1529'

PROPOSED STRUCTURE Telecommunications EXISTING STRUCTURE Single Family Dwelling

DIMENSIONS Tower 195' (LxWxH)

DISTANCE FROM: SIDE YARDS _____ FRONT YARD _____ REAR LOT _____

FLOOR AREA: _____ SQ.FT.

STRUCTURE WILL BE SERVICED BY private well N/A on site septic N/A
sewer N/A public water N/A

HEALTH DEPARTMENT SIGNATURE: _____ DATE: _____
W.P.C.A. SIGNATURE: _____ DATE: _____

INLAND WETLAND COMMISSION APPLICATION REQUIRED. YES _____ NO

PROPERTY USE: single family residence _____ commercial _____
multifamily _____ manufacturing _____ other Telecommunications Facility

PLOT PLAN ATTACHED A-2 FOUNDATION AS BUILT REQUIRED _____
EXCAVATION PERMIT _____

CONFORMING ALL ASPECTS EXISTING NON CONFORMING _____

DOES NOT CONFORM _____ CONFORMS THROUGH VARIANCE _____

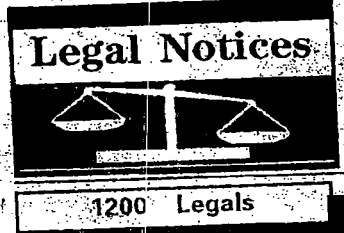
VARIANCE GRANTED TO: _____

DATE OF VARIANCE: _____ FOR _____

I HEREBY AGREE TO CONFORM TO ALL REQUIREMENTS OF THE LAWS OF THE STATE OF
CONNECTICUT AND THE TOWN ORDINANCES OF THE TOWN OF PLYMOUTH AND TO NOTIFY THE
PLANNING AND ZONING COMMISSION OF ANY ALTERATIONS IN THE PLANS FOR WHICH THIS
PERMIT IS BEING ASKED. I FURTHERMORE AGREE THAT THIS BUILDING IS TO BE LOCATED
AT THE PROPER DISTANCE FROM ALL STREET AND LOT LINES REQUIRED BY THE ZONING
REGULATIONS OF ANY OTHER APPLICABLE LOCAL AND STATE ORDINANCES AND REGULATIONS
AND IT IS UNDERSTOOD THAT THE FACILITY UPON COMPLETION WILL BE USED IN FULL
COMPLIANCE WITH THE ZONING REGULATIONS OF THE TOWN OF PLYMOUTH. I HEREBY APPLY
FOR A CERTIFICATE OF USE AND COMPLIANCE FOR THE ABOVE DESCRIBED BUILDING OR USE
AS DESCRIBED IN THE ABOVE APPLICATION FOR A PERMIT. IT IS MY UNDERSTANDING THAT
THE FACILITY CAN NOT BE OCCUPIED UNTIL A CERTIFICATE OF USE AND COMPLIANCE HAS
BEEN ISSUED BY THE PLANNING AND ZONING COMMISSION.

Thomas F. Flynn III See Attached
SIGNATURE OF APPLICANT SIGNATURE OF OWNER (IF DIFFERENT)
Thomas F. Flynn III SBA, Inc. FOR OFFICE USE ONLY
PERMIT IS HEREBY: GRANTED _____ PERMIT # _____ DATE : _____
DENIED _____ REASON FOR DENIAL _____

LAND USE ENFORCEMENT OFFICER



**LEGAL NOTICE
TOWN OF PLYMOUTH**

The Planning & Zoning Commission voted at public hearings on September 27, 2001 the following:

1. CONTINUED the public hearings for 289 South St.-Special Permit-Hulzenca; and 191 Main St.-Special Exception-Plymouth Volunteer Ambulance.

The Planning & Zoning Commission voted at a regular meeting on September 27, 2001 the following:

1. GRANTED a two week extension to Greystone Rd.- Special Permit Review-Edwards.
2. APPROVED 170 Mt. Tobe Rd.- Special Permit-SBA.
3. TABLED 391 Main Street-Site Plan Modification and 10 Todd Hollow Road-Site Plan-KCK Properties.
4. APPROVED the front yard setback for 6 Hove Street - Denski.
5. APPROVED 171 Town Hill Road-Terryville Lion's Club-temporary trailer for 1 year.
6. APPROVED 180 Allentown Road-Temporary Trailer-Renalter for 1 year.

Effective upon date of publication.

**PLYMOUTH PLANNING &
ZONING COMMISSION**
Patrick Herzog, Chairman

Dated at Plymouth, CT
This 6th Day of October, 2001

D6 | Saturday, October 6, 2001



Date 2/3/04

Mr. Tim Rosa
SBA Network Services
2490 Bruen Lane
Easton, PA 18040
O: (610) 252-1944

Sterling Engineering & Design Group, Ltd.
7171 Hwy 6 N, Ste 130, Houston, Texas 77095
(P) 281/583-7088 (F) 281/583-5495
Email: Dbrick@sedg.net

Subject: Structural Analysis Report – Our Project Number: 061-287

Carrier Identification

Cingular
Carrier Site Name: --
Carrier Site I.D. Number: --

SBA Site Name: South Plymouth
SBA Site I.D. Number: CT03538-S

Site Data

170 Mount Tobe Road, Plymouth, CT 06782 (Litchfield County)
Latitude 41°-37'-48", Longitude 73°-3'-23"
160 Foot – Monopole

Dear Tim:

Sterling Engineering is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the SBA Network Services request for an analysis and associated proposal. The purpose of the analysis is to determine the suitability of the tower for the addition of proposed equipment when combined with the existing equipment on the structure. This analysis has been performed in accordance with the TIA/EIA 222-F standard and local code requirement wind speed. Based on our analysis we have determined the **Tower Structure and Foundation is Adequate** for the proposed loading. We at Sterling Engineering appreciate the opportunity of providing our continuing professional services to you and SBA Network Services. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,
Sterling Engineering and Design Group, Ltd.

Sandeep N. Patel, P.E., S.E.

Attachments:
Elevation Drawing
Feedline Distribution Diagram
Deflection Diagram
Tower Details

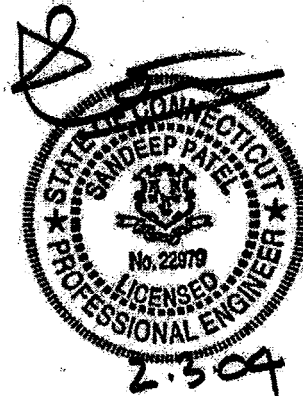


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INTRODUCTION

The 160' monopole is manufactured by Summit Manufacturing LLC. The structural design information for this tower was obtained from the manufacturer's drawings provided by SBA. The structural loading information was obtained from SBA. The tower is located in Litchfield County, Connecticut. The tower analysis includes loads for existing and proposed appurtenances.

ANALYSIS CRITERIA

Specific code: TIA/EIA-222-F

Specific environmental conditions: 80 mph + 0" ice
 69 mph + 1/2" ice

Table 1 – Proposed Antenna and Cable Information

Center Line Elevation	Carrier Name	No. of Antenna / Dis	Antenna Manufacturer	Antenna Model	Mount Type	Feed Lines (No.)	Feed Line Size (In.)
108	Cingular	12	CSS	DUO-1417-8686-40	13' Platform w/o mount pipe	12	1-5/8"
108	Cingular	6	-	ADC Clear Gain Dual Band 800/1900 TMA	-	-	-
108	Cingular	3	CSS	Dual Band Combiner	-	-	-

Table 2 – Existing Antenna and Cable Information

Center Line Elevation	Carrier Name	No. of Antenna / Dis	Antenna Manufacturer	Antenna Model	Mount Type	Feed Lines (No.)	Feed Line Size (In.)
157	T-Mobile	3	EMS	RR90-17-02DP	13' Platform w/o mount pipe	6	1-5/8"
147	Sprint	12	Decibel	DB980F90T2E-M	13' Platform w/o mount pipe	12/1	(1-5/8") / (1/2")
137	Verizon	12	Decibel	DB844H80-XY	13' Platform w/o mount pipe	12/1	(1-5/8") / (1/2")
127	Nextel	12	Decibel	DB844H90E-XY	13' Platform w/o mount pipe	12	1-5/8"

Table 3 Future Antenna and Cable Information

Center Line Elevation	Carrier Name	No. of Antenna / Dis	Antenna Manufacturer	Antenna Model	Mount Type	Feed Lines (No.)	Feed Line Size (In.)
157	T-Mobile	3	EMS	RR90-17-02DP	13' Platform w/o mount pipe	6	1-5/8"

ANALYSIS PROCEDURE

Analysis Methods

ERI Tower (Version 2.00), a commercially available software program, was used to create a three dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/EIA/TIA 222-F or the local building code requirements. Selected output from the analysis is included in Appendix A.

Assumptions

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings
4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222F.
5. Some assumptions are made regarding mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
6. The existing coax cables are assumed to be distributed equally on all the three faces of the tower if existing coax cables layout plan is not available to us.
7. Stress ratios for a structural member less than 100% indicates that it meets all design requirements set forth by TIA/EIA Standard. In addition, member stress ratios between 100% and 105% are acceptable

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and Sterling Engineering should be allowed to review any new information to determine its effect on the structural integrity of the tower.

ANALYSIS RESULTS

Tower Component Stresses vs. Capacity

Section Capacity Table									
<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Size</i>	<i>Critical Element</i>	<i>P lb</i>	<i>SF*P_{allow} lb</i>	<i>% Capacity</i>	<i>Pass</i>	<i>Fail</i>
L1	160 - 119.25	Pole	TP32.763x27x0.25	1	-13960.00	175485.44	32.7	Pass	
L2	119.25 - 78.5	Pole	TP41.025x31.662x0.3125	2	-18544.30	419797.67	63.5	Pass	
L3	78.5 - 38.75	Pole	TP48.947x39.3076x0.375	3	-28371.00	856431.14	72.8	Pass	
L4	38.75 - 0	Pole	TP56.53x46.9118x0.4375	4	-43221.00	1667769.55	73.6	Pass	
							Summary		
							Pole (L4)	73.6	Pass
							RATING =	73.6	Pass

Foundation (Comparing design loads to actual loads)

Reaction	Foundation Design Reactions (kips)	Proposed Reactions from Analysis (kips)	Remarks
Axial	37	53.9	O.K.
Shear	38	32.207	O.K.
Moment	4450	3318.1	O.K.

The base shear and moment under current and proposed loading are less than the original foundation design reactions. Hence the foundation will be adequate to support the existing and proposed loading.



Southwestern Bell Mobile Systems, LLC

500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7700
Fax: (860) 513-7190

Michele G. Briggs
Manager of Real Estate

February 11, 2004

Honorable David C. Mischke
Mayor, Town of Plymouth
Town Hall 80 Main Street
Terryville, Connecticut 06786

Re: Notice of Exempt Modification – Existing SBA Telecommunications Tower Facility at 170 Mount Tobe Road, Plymouth, Connecticut

Dear Mayor Mischke:

Southwestern Bell Mobile Systems, LLC (“SBMS”) intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 170 Mount Tobe Road in Plymouth, Connecticut.

The facility is owned and operated by SBA Properties, Inc. (“SBA”), 5900 Broken Sound Parkway NW, Boca Raton, FL 33487. SBA leases the land from Susan and Walter MacDonald of Plymouth.

A Notice of Exempt Modification has been filed with the Connecticut Siting Council as required by Regulations of Connecticut State Agencies (“R.C.S.A.”) Section 16-50j-73. Please accept this letter as notification to the Town of Plymouth under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The attached letter fully sets forth the SBMS proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council’s procedures, please contact the undersigned or Mr. Derek Phelps, Executive Director of the Connecticut Siting Council, at (860) 827-2935.

Sincerely,

Michele G. Briggs
Manager of Real Estate

Enclosure



Date 2/3/04

Mr. Tim Rosa
SBA Network Services
2490 Bruen Lane
Easton, PA 18040
O: (610) 252-1944

Sterling Engineering & Design Group, Ltd.
7171 Hwy 6 N, Ste 130, Houston, Texas 77095
(P) 281/583-7088 (F) 281/583-5495
Email: Dbrick@sedg.net

Subject: Structural Analysis Report – Our Project Number: 061-287

Carrier Identification

Cingular
Carrier Site Name: -
Carrier Site I.D. Number: --

SBA Site Name: South Plymouth
SBA Site I.D. Number: CT03538-S

Site Data

170 Mount Tobe Road, Plymouth, CT 06782 (Litchfield County)
Latitude 41°-37'-48", Longitude 73°-3'-23"
160 Foot – Monopole

Dear Tim:

Sterling Engineering is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the SBA Network Services request for an analysis and associated proposal. The purpose of the analysis is to determine the suitability of the tower for the addition of proposed equipment when combined with the existing equipment on the structure. This analysis has been performed in accordance with the TIA/EIA 222-F standard and local code requirement wind speed. Based on our analysis we have determined the **Tower Structure and Foundation is Adequate** for the proposed loading. We at Sterling Engineering appreciate the opportunity of providing our continuing professional services to you and SBA Network Services. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,
Sterling Engineering and Design Group, Ltd.

Sandeep N. Patel, P.E., S.E.

Attachments:
Elevation Drawing
Feedline Distribution Diagram
Deflection Diagram
Tower Details

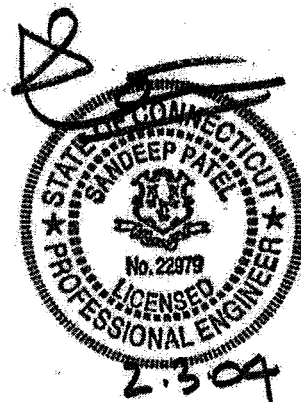


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 Tower Details
 Foundation Details

INTRODUCTION

The 160' monopole is manufactured by Summit Manufacturing LLC. The structural design information for this tower was obtained from the manufacturer's drawings provided by SBA. The structural loading information was obtained from SBA. The tower is located in Litchfield County, Connecticut. The tower analysis includes loads for existing and proposed appurtenances.

ANALYSIS CRITERIA

Specific code: TIA/EIA-222-F

Specific environmental conditions: 80 mph + 0" ice
 69 mph + 1/2" ice

Table 1 – Proposed Antenna and Cable Information

Center Line Elevation	Carrier Name	No. of Antenna / Dish	Antenna Manufacturer	Antenna Model	Mount Type	Feed Lines (No.)	Feed Line Size (In.)
108	Cingular	12	CSS	DUO-1417-8686-40	13' Platform w/o mount pipe	12	1-5/8"
108	Cingular	6	-	ADC Clear Gain Dual Band 800/1900 TMA	-	-	-
108	Cingular	3	CSS	Dual Band Combiner	-	-	-

Table 2 – Existing Antenna and Cable Information

Center Line Elevation	Carrier Name	No. of Antenna / Dish	Antenna Manufacturer	Antenna Model	Mount Type	Feed Lines (No.)	Feed Line Size (In.)
157	T-Mobile	3	EMS	RR90-17-02DP	13' Platform w/o mount pipe	6	1-5/8"
147	Sprint	12	Decibel	DB980F90T2E-M	13' Platform w/o mount pipe	12/1	(1-5/8") / (1/2")
137	Verizon	12	Decibel	DB844H80-XY	13' Platform w/o mount pipe	12/1	(1-5/8") / (1/2")
127	Nextel	12	Decibel	DB844H90E-XY	13' Platform w/o mount pipe	12	1-5/8"

Table 3 Future Antenna and Cable Information

Center Line Elevation	Carrier Name	No. of Antenna / Dish	Antenna Manufacturer	Antenna Model	Mount Type	Feed Lines (No.)	Feed Line Size (In.)
157	T-Mobile	3	EMS	RR90-17-02DP	13' Platform w/o mount pipe	6	1-5/8"

ANALYSIS PROCEDURE

Analysis Methods

ERI Tower (Version 2.00), a commercially available software program, was used to create a three dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/EIA/TIA 222-F or the local building code requirements. Selected output from the analysis is included in Appendix A.

Assumptions

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings
4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222F.
5. Some assumptions are made regarding mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
6. The existing coax cables are assumed to be distributed equally on all the three faces of the tower if existing coax cables layout plan is not available to us.
7. Stress ratios for a structural member less than 100% indicates that it meets all design requirements set forth by TIA/EIA Standard. In addition, member stress ratios between 100% and 105% are acceptable

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and Sterling Engineering should be allowed to review any new information to determine its effect on the structural integrity of the tower.

ANALYSIS RESULTS

Tower Component Stresses vs. Capacity

Section Capacity Table									
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail	
L1	160 - 119.25	Pole	TP32.763x27x0.25	1	-13960.00	175485.44	32.7	Pass	
L2	119.25 - 78.5	Pole	TP41.025x31.662x0.3125	2	-18544.30	419797.67	63.5	Pass	
L3	78.5 - 38.75	Pole	TP48.947x39.3076x0.375	3	-28371.00	856431.14	72.8	Pass	
L4	38.75 - 0	Pole	TP56.53x46.9118x0.4375	4	-43221.00	1667769.55	73.6	Pass	
							Summary		
							Pole (L4)	73.6	Pass
							RATING =	73.6	Pass

Foundation (Comparing design loads to actual loads)

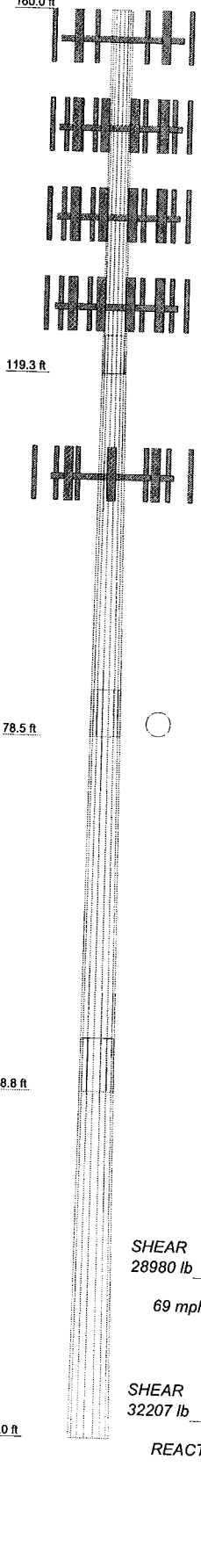
Reaction	Foundation Design Reactions (kips)	Proposed Reactions from Analysis (kips)	Remarks
Axial	37	53.9	O.K.
Shear	38	32.207	O.K.
Moment	4450	3318.1	O.K.

The base shear and moment under current and proposed loading are less than the original foundation design reactions. Hence the foundation will be adequate to support the existing and proposed loading.

APPENDIX A

Elevation Drawings
Feedline Distribution Diagram
Deflection Diagram

Section	1	2	3	4
Length (ft)	40.75	45.00	45.00	44.75
Number of Sides	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.4375
Lap Splice (ft)				6.00
Top Dia (in)		31.6620	39.3076	46.9118
Bot Dia (in)	27.0000	41.0250	48.9470	56.5300
Grade	32.7630			
Weight (lb)	3260.3	5472.4	7974.2	10844.0



APPURTENANCES

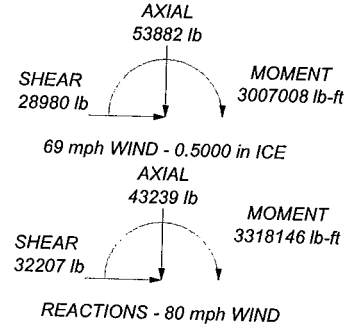
TYPE	ELEVATION	TYPE	ELEVATION
RR90-17-02DP w/Mount Pipe (T-Mobile, Existing)	157	(4) DB844H90E-XY w/Mount Pipe (Nextel)	127
RR90-17-02DP w/Mount Pipe (T-Mobile, Existing)	157	(4) DB844H90E-XY w/Mount Pipe (Nextel)	127
RR90-17-02DP w/Mount Pipe (T-Mobile, Existing)	157	(4) DB844H90E-XY w/Mount Pipe (Nextel)	127
RR90-17-02DP w/Mount Pipe (T-Mobile, Future)	157	PIROD 13' Low Profile Platform (Monopole) (Nextel)	127
RR90-17-02DP w/Mount Pipe (T-Mobile, Future)	157	(3) DUO1417-8686 w/Mount Pipe (Proposed) (Cingular)	108
RR90-17-02DP w/Mount Pipe (T-Mobile, Future)	157	(3) DUO1417-8686 w/Mount Pipe (Proposed) (Cingular)	108
PIROD 13' Low Profile Platform (Monopole) (T-Mobile)	157	(3) DUO1417-8686 w/Mount Pipe (Proposed) (Cingular)	108
PIROD 13' Low Profile Platform (Monopole) (Sprint)	147	Valmont 13' Platform w/o Rails (Cingular)	108
(4) DB980F90T2E-M w/Mount Pipe (Sprint)	147	DUO1417-8686 w/Mount Pipe (Future) (Cingular)	108
(4) DB980F90T2E-M w/Mount Pipe (Sprint)	147	DUO1417-8686 w/Mount Pipe (Future) (Cingular)	108
(4) DB980F90T2E-M w/Mount Pipe (Sprint)	147	DUO1417-8686 w/Mount Pipe (Future) (Cingular)	108
(4) DB844H80-XY w/Mount Pipe (Verizon)	137	(2) ADC TTA (Cingular)	108
(4) DB844H80-XY w/Mount Pipe (Verizon)	137	(2) ADC TTA (Cingular)	108
(4) DB844H80-XY w/Mount Pipe (Verizon)	137	(2) ADC TTA (Cingular)	108
(4) DB844H80-XY w/Mount Pipe (Verizon)	137	CSS Dual Band Combiner (Cingular)	108
PIROD 13' Low Profile Platform (Monopole) (Verizon)	137	CSS Dual Band Combiner (Cingular)	108
		CSS Dual Band Combiner (Cingular)	108

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 50 mph wind.
4. TOWER RATING: 73.6%



Sterling Engineering			
7171, Highway 6 North, Ste 130 Houston, TX 77095 Phone: (281) 583 7088 FAX: (281) 583 5495			
Job:	160 ft Monopole		
Project:	South Plymouth, CT03538-S		
Client:	SBA Network Services	Drawn by:	ASM
Code:	TIA/EIA-222-F	Date:	02/03/04
Path:		Scale:	NTS
			Dwg No. E-1

Feedline Elevation Chart
0' - 160'

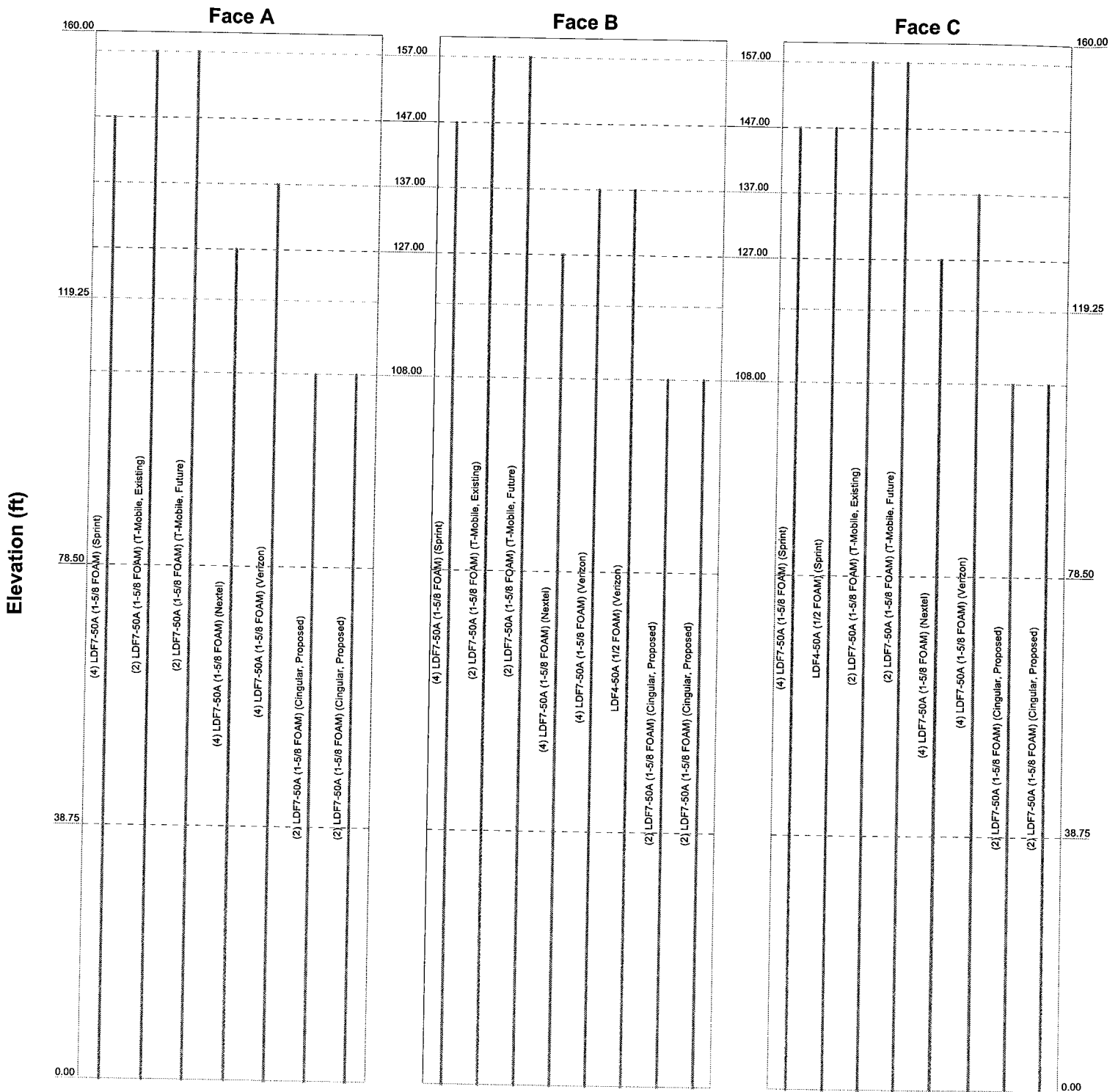
Round

Flat

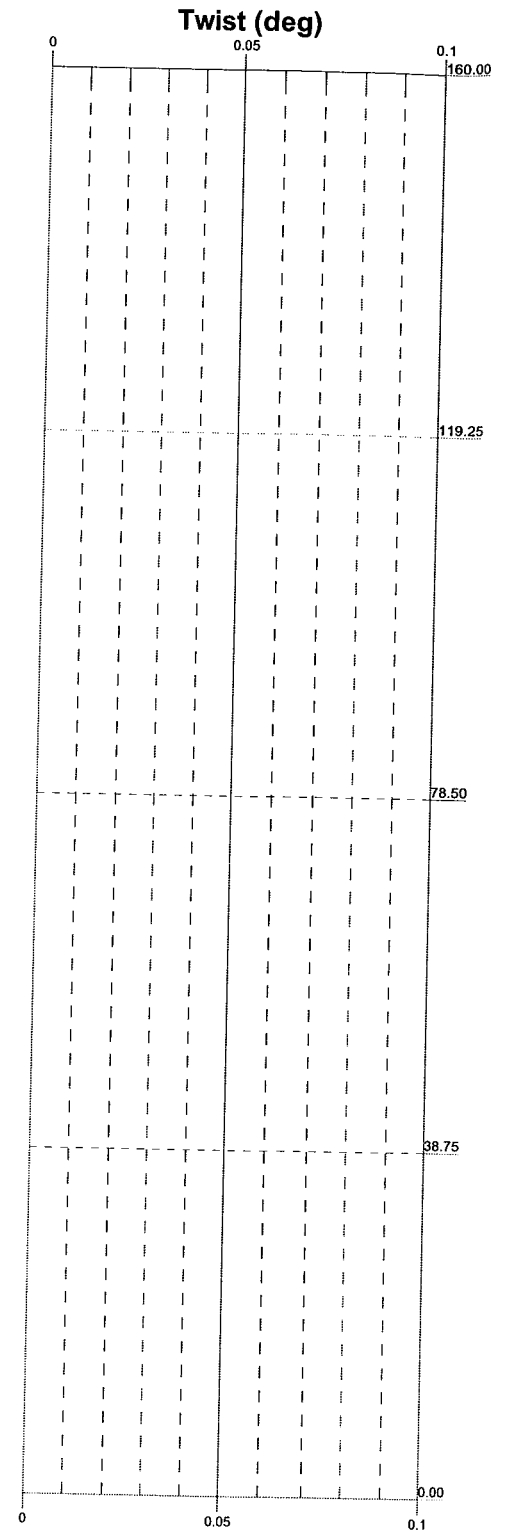
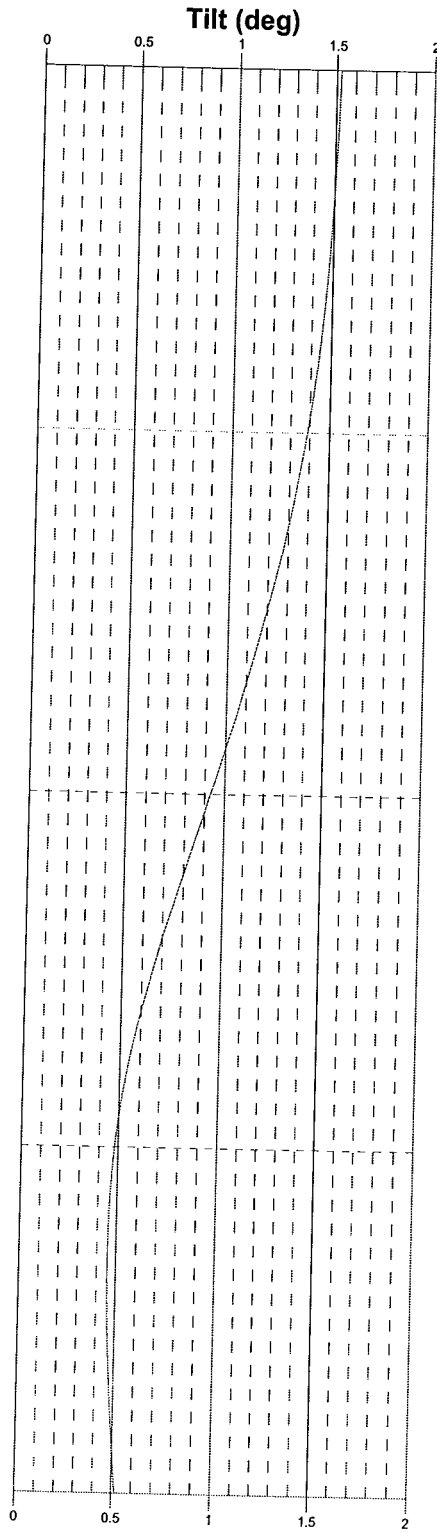
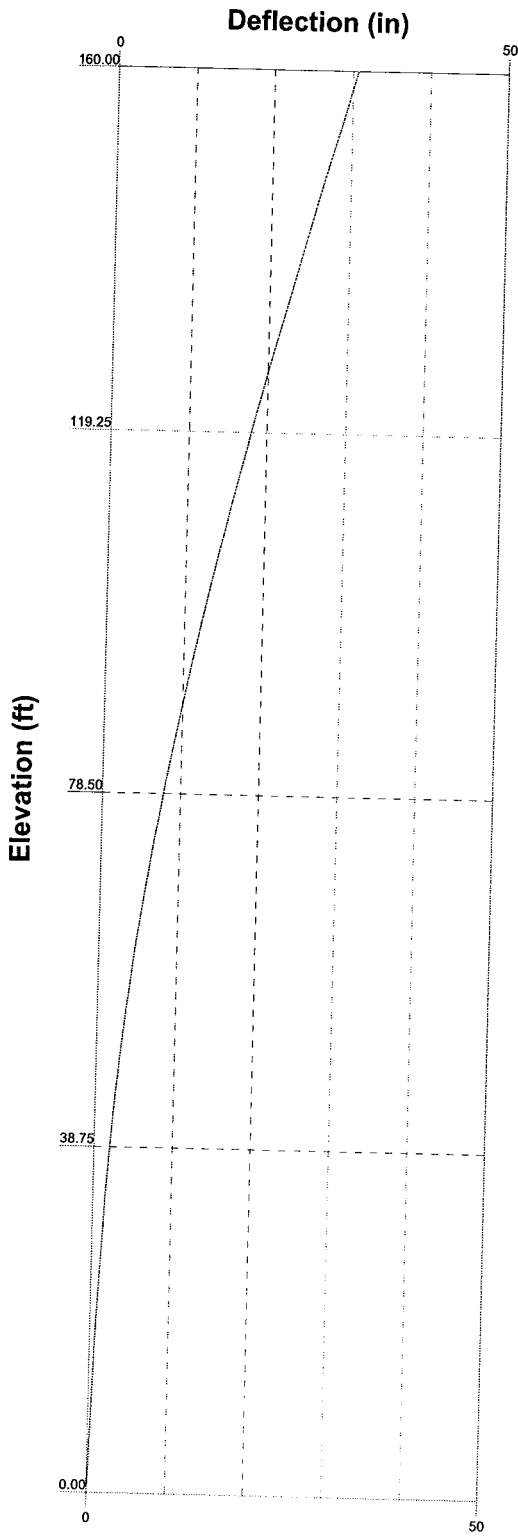
App In Face

App Out Face

Truss Leg



Sterling Engineering		Job: 160 ft Monopole	
7171, Highway 6 North, Ste 130		Project: South Plymouth, CT03538-S	
Houston, TX 77095		Client: SBA Network Services	Drawn by: ASM
Phone: (281) 583 7088		Code: TIA/EIA-222-F	Date: 02/03/04
FAX: (281) 583 5495		Path:	Scale: NTS
			Dwg No. E-7



Sterling Engineering		Job: 160 ft Monopole	
7171, Highway 6 North, Ste 130		Project: South Plymouth, CT03538-S	
Houston, TX 77095		Client: SBA Network Services	Drawn by: ASM
Phone: (281) 583 7088		Code: TIA/EIA-222-F	Date: 02/03/04
FAX: (281) 583 5495		Path:	Scale: NTS
			Dwg No. E-5

APPENDIX B

Tower Details
Foundation Details

SUMMIT MANUFACTURING, LLC

225 KIWANIS BOULEVARD, WEST HAZLETON, PA 18201
 PHONE: (888) 847-6537 FAX: (888) 460-6885
 VISIT US AT WWW.SUMMITMFG.COM



PAUL J. FORD AND COMPANY
 STRUCTURAL ENGINEERS
 250 East Broad Street, Suite 500, Columbus, Ohio 43215
 (614) 221-6679 Fax: (614) 448-4105 www.PJFweb.com

JOB DATA			
Page 1 of 2	Job No.	29201-1019	
By CMM	Design No.	SUMMIT #15616	
Chk'd By <i>KJS</i>	Date	08-21-2001	
	Rev. No.	Rev. Date	
Pole	160-FT MONOPOLE		
Site	10125-059, ROUTE 480, PLYMOUTH, ILITCHFIELD CO., CT		
Owner	SBA INC.		
Ref. No.			
Design	80 MPH / 69 MPH + 1/2" RADIAL ICE ACCORDING TO TIA/EIA-222-F 1996		

LOAD CASES		
CASE 1	80 MPH WITH NO ICE	DESIGN WIND
CASE 2	69 MPH WITH 1/2" RADIAL ICE	REDUCED WIND WITH ICE
CASE 3	50 MPH WITH NO ICE	OPERATIONAL WIND

POLE SPECIFICATIONS	
Pole Shape Type:	18-SIDED POLYGON
Taper:	0.215031 IN/FT
Shaft Steel:	ASTM A607 GRADE 65 ✓
Base PL Steel:	ASTM A572 GRADE 55 (55 KSI)
Anchor Bolts:	2 1/4" x 8'-0" LONG #18J ASTM A615 GRADE 75

ANTENNA LIST		
No.	Elev.	Description
-	TOP	5/8" LIGHTNING ROD
1-12	TOP	(12) DB896H PANEL
-	TOP	14' LOW PROFILE PLATFORM
13-24	150.00	(12) DB896H PANEL
-	150.00	14' LOW PROFILE PLATFORM
25-36	140.00	(12) DB896H PANEL
-	140.00	14' LOW PROFILE PLATFORM
37-48	130.00	(12) DB896H PANEL
-	130.00	14' LOW PROFILE PLATFORM
49-60	120.00	(12) DB896H PANEL
-	120.00	14' LOW PROFILE PLATFORM
61-72	110.00	(12) DB896H PANEL
-	110.00	14' LOW PROFILE PLATFORM

STEP BOLTS FULL HEIGHT.
 ANTENNA FEED LINES RUN INSIDE OF POLE.

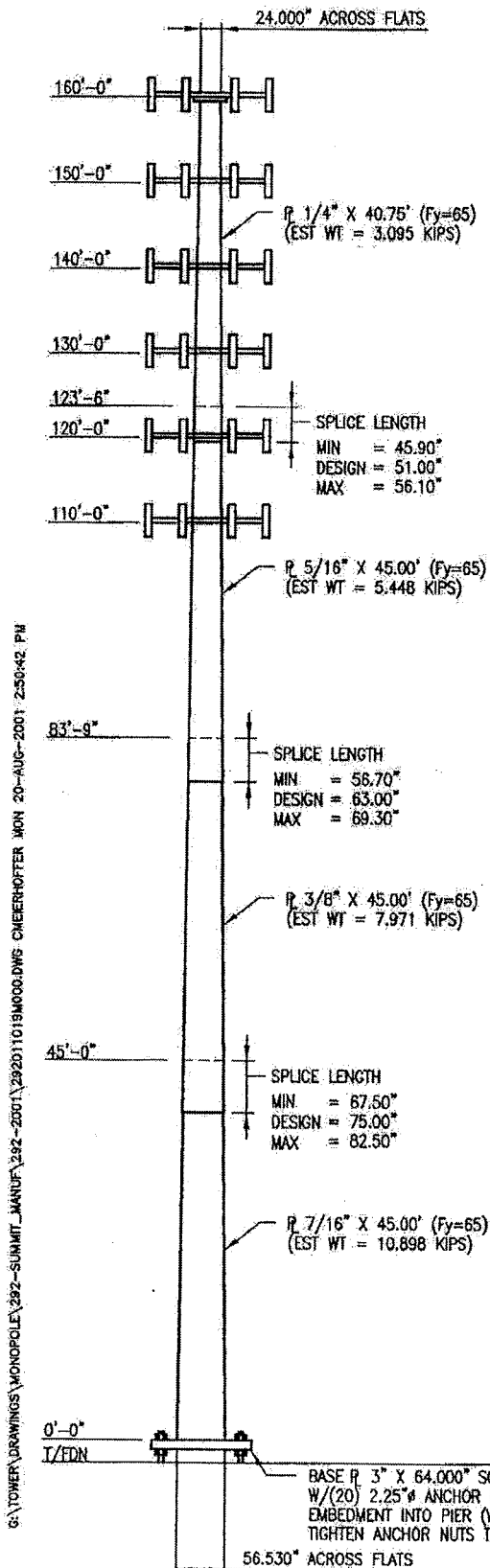
Elevation	80 MPH WIND		50 MPH WIND	
	Lateral Deflection (Inches)	Rotation (sway) (degrees)	Lateral Deflection (Inches)	Rotation (sway) (degrees)
TOP	118.2	6.188	46.1	2.417

SHAFT SECTION DATA					
Shaft Section	Section Length (feet)	Plate Thickness (in.)	Lap Splice (in.)	Diameter Across Flats (inches)	
				@ Top	@ Bottom
1	40.75	0.2500	51.00	24.000	32.763
2	45.00	0.3125	63.00	31.349	41.025
3	45.00	0.3750	75.00	39.271	48.947
4	45.00	0.4375		46.854	56.530

NOTE: DIMENSIONS SHOWN DO NOT INCLUDE GALVANIZING TOLERANCES

FACTORED BASE REACTIONS FOR FOUNDATION DESIGN

MOMENT = 4450 ft-kips
 SHEAR = 38 kips
 AXIAL = 37 kips



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SUMMIT MANUFACTURING, LLC

225 KIWANIS BOULEVARD, WEST HAZLETON, PA 18201
 PHONE: (888) 847-6837 FAX: (888) 460-6885
 VISIT US AT WWW.SUMMITMFG.COM



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 250 East Broad Street, Suite 500, Columbus, Ohio 43215
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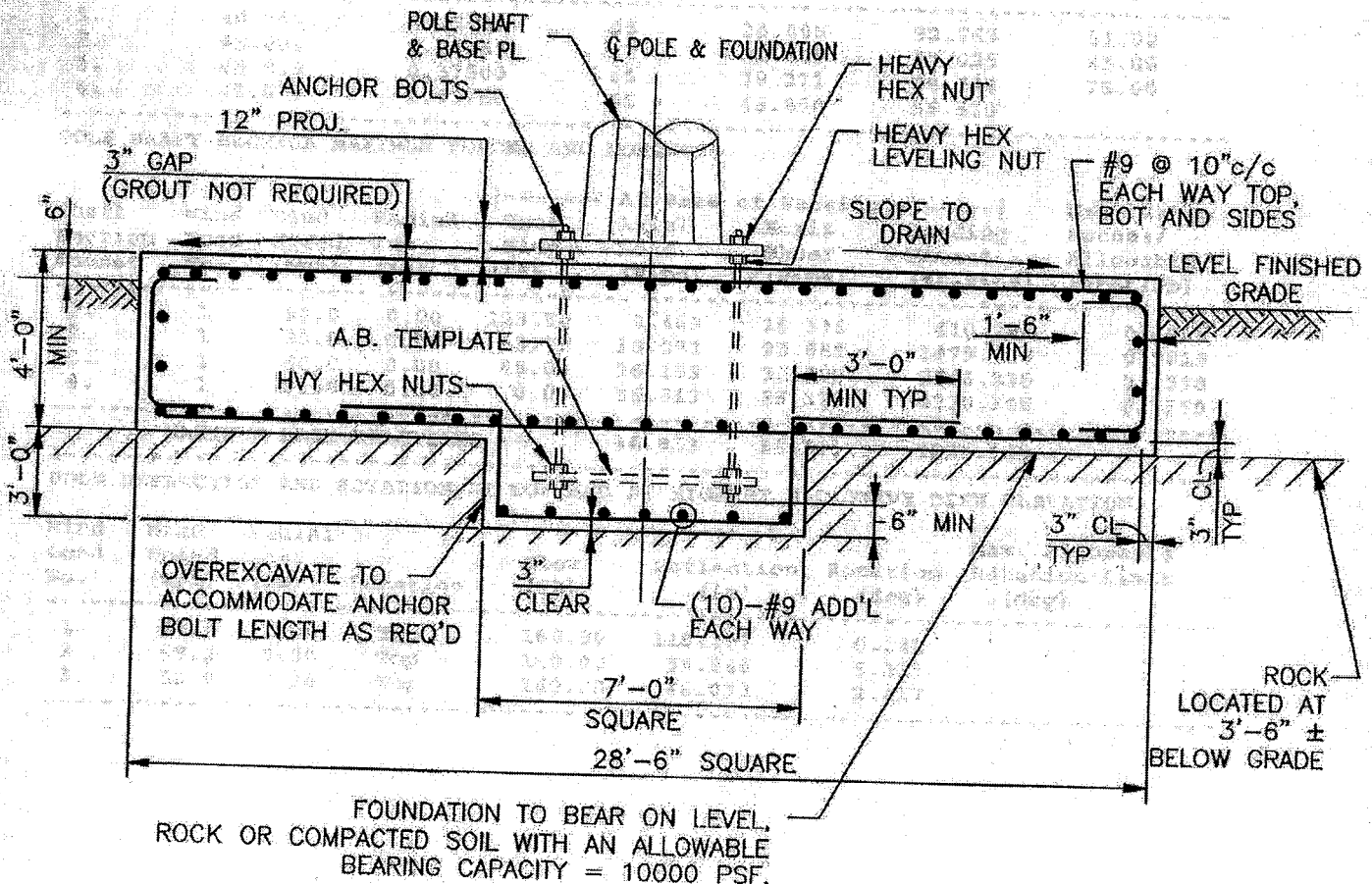
NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
2. REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-615 (GRADE 60) EXCEPT THAT PIER TIES MAY BE ASTM A-615 (GRADE 40).
3. SEE PAGE 1 FOR ANCHOR BOLT QUANTITY, SIZE, LENGTH, AND BOLT CIRCLE.
4. CONTRACTOR SHALL READ THE GEOTECHNICAL REPORT AND CONSULT THE GEOTECHNICAL ENGINEER AS NECESSARY PRIOR TO CONSTRUCTION.

JOB DATA	
Page 2 of 2	Job No. 29201-1019
By GMM	Design No. SUMMIT JOB #15816
Chk'd By BSS	Date 08-21-2001
Pole 120-FT MONOPOLE	Rev. No. Rev. Date
Site 10125-059, SOUTH PLYMOUTH, LITCHFIELD CO., CT	
Owner SBA INC.	
Ref. No.	
Design 80 MPH / 69 MPH + 1/2" RADIAL ICE	
	ACCORDING TO TIA/EIA-222-F 1996

FOUNDATION SPECIFICATIONS	
Volume Concrete Required:	126 CUBIC YARDS
Soils Report:	JAWORSKI GEOTECH, INC. 00244G 07-31-2001

DESIGN CRITERIA	
Moment:	4450 FT-KIPS
Shear:	38 KIPS
Axial:	37 KIPS



MAT FOUNDATION